

Aeronautics Educator Guide			
2004 Science			
Grade Level Articulations			
Arizona Science			
Grade 2			
Activity/Lesson	State	Standards	
Air Engines (12-16)	AZ	SCI.2.1.1.PO 1	Formulate relevant questions about the properties of objects, organisms, and events in the environment.
Air Engines (12-16)	AZ	SCI.2.1.3.PO 2	Construct reasonable explanations of observations on the basis of data obtained (e.g., Based on the data, does this make sense? Could this really happen?).
Air Engines (12-16)	AZ	SCI.2.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Air Engines (12-16)	AZ	SCI.2.5.1.PO 1	Describe objects in terms of measurable properties (e.g., length, volume, weight, temperature) using scientific tools.
Rotor Motor (69-75)	AZ	SCI.2.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Making Time Fly (80-86)	AZ	SCI.2.1.4.PO 1	Communicate the results and conclusions of an investigation (e.g., verbal, drawn, or written).
Making Time Fly (80-86)	AZ	SCI.2.1.4.PO 2	Communicate with other groups to describe the results of an investigation.
Where is North? The Compass Can Tell Us (87-90)	AZ	SCI.2.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Let's Build a Table Top Airport (91-96)	AZ	SCI.2.1.4.PO 2	Communicate with other groups to describe the results of an investigation.
Dunked Napkin (17-22)	AZ	SCI.2.1.1.PO 1	Formulate relevant questions about the properties of objects, organisms, and events in the environment.
Dunked Napkin (17-22)	AZ	SCI.2.1.2.PO 2	Participate in guided investigations in life, physical, and earth and space sciences.
Dunked Napkin (17-22)	AZ	SCI.2.1.2.PO 3	Use simple tools such as rulers, thermometers, magnifiers, and balances to collect data (U.S. customary units).
Dunked Napkin (17-22)	AZ	SCI.2.1.2.PO 4	Record data from guided investigations in an organized and appropriate format (e.g., lab book, log, notebook, chart paper).
Dunked Napkin (17-22)	AZ	SCI.2.1.3.PO 3	Compare the results of the investigation to predictions made prior to the investigation.
Dunked Napkin (17-22)	AZ	SCI.2.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Dunked Napkin (17-22)	AZ	SCI.2.1.4.PO 1	Communicate the results and conclusions of an investigation (e.g., verbal, drawn, or written).
Dunked Napkin (17-22)	AZ	SCI.2.5.1.PO 1	Describe objects in terms of measurable properties (e.g., length, volume, weight, temperature) using scientific tools.

Dunked Napkin (17-22)	AZ	SCI.2.5.1.PO 3.2	Demonstrate that water can exist as a (liquid – water)
Paper Bag Mask (23-28)	AZ	SCI.2.1.1.PO 1	Formulate relevant questions about the properties of objects, organisms, and events in the environment.
Paper Bag Mask (23-28)	AZ	SCI.2.1.3.PO 3	Compare the results of the investigation to predictions made prior to the investigation.
Paper Bag Mask (23-28)	AZ	SCI.2.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Paper Bag Mask (23-28)	AZ	SCI.2.5.1.PO 1	Describe objects in terms of measurable properties (e.g., length, volume, weight, temperature) using scientific tools.
Wind in Your Socks) (29-35)	AZ	SCI.2.1.1.PO 1	Formulate relevant questions about the properties of objects, organisms, and events in the environment.
Wind in Your Socks) (29-35)	AZ	SCI.2.1.2.PO 3	Use simple tools such as rulers, thermometers, magnifiers, and balances to collect data (U.S. customary units).
Wind in Your Socks) (29-35)	AZ	SCI.2.1.3.PO 2	Construct reasonable explanations of observations on the basis of data obtained (e.g., Based on the data, does this make sense? Could this really happen?).
Wind in Your Socks) (29-35)	AZ	SCI.2.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Wind in Your Socks) (29-35)	AZ	SCI.2.5.1.PO 1	Describe objects in terms of measurable properties (e.g., length, volume, weight, temperature) using scientific tools.
Wind in Your Socks) (29-35)	AZ	SCI.2.6.3.PO 4	Analyze the relationship between clouds, temperature, and weather patterns.
Air: Interdisciplinary Learning Activities (36-39)	AZ	SCI.2.6.3.PO 4	Analyze the relationship between clouds, temperature, and weather patterns.
Bag Balloons (40-43)	AZ	SCI.2.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Sled Kite (44-51)	AZ	SCI.2.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Sled Kite (44-51)	AZ	SCI.2.5.1.PO 1	Describe objects in terms of measurable properties (e.g., length, volume, weight, temperature) using scientific tools.
Right Flight (52-59)	AZ	SCI.2.1.1.PO 2	Predict the results of an investigation (e.g., in animal life cycles, phases of matter, the water cycle).
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2004 Science			
Grade Level Articulations			
Arizona Science			
Grade 3			
Activity/Lesson	State	Standards	

Air Engines (12-16)	AZ	SCI.3.1.1.PO 1	Formulate relevant questions about the properties of objects, organisms, and events of the environment using observations and prior knowledge.
Air Engines (12-16)	AZ	SCI.3.1.2.PO 4	Use metric and U.S. customary units to measure objects.
Air Engines (12-16)	AZ	SCI.3.1.3.PO 2	Construct reasonable interpretations of the collected data based on formulated questions.
Air Engines (12-16)	AZ	SCI.3.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Air Engines (12-16)	AZ	SCI.3.1.3.PO 5	Record questions for further inquiry based on the conclusions of the investigation.
Rotor Motor (69-75)	AZ	SCI.3.1.3.PO 1.a	Organize data using the following methods with appropriate labels (bar graphs)
Rotor Motor (69-75)	AZ	SCI.3.1.3.PO 2	Construct reasonable interpretations of the collected data based on formulated questions.
Rotor Motor (69-75)	AZ	SCI.3.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Making Time Fly (80-86)	AZ	SCI.3.1.4.PO 3	Communicate with other groups to describe the results of an investigation.
Making Time Fly (80-86)	AZ	SCI.3.2.1.PO 1	Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., John Muir [naturalist], supports Strand 4; Thomas Edison [inventor], supports Strand 5; Mae Jemison [engineer, physician, astronaut], supports Strand 6,; Edmund Halley [scientist], supports Strand 6).
Where is North? The Compass Can Tell Us (87-90)	AZ	SCI.3.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Let's Build a Table Top Airport (91-96)	AZ	SCI.3.1.4.PO 1	Communicate investigations and explanations using evidence and appropriate terminology.
Let's Build a Table Top Airport (91-96)	AZ	SCI.3.3.2.PO 3	Design and construct a technological solution to a common problem or need using common materials.
Dunked Napkin (17-22)	AZ	SCI.3.1.1.PO 1	Formulate relevant questions about the properties of objects, organisms, and events of the environment using observations and prior knowledge.
Dunked Napkin (17-22)	AZ	SCI.3.1.1.PO 2	Predict the results of an investigation based on observed patterns, not random guessing.
Dunked Napkin (17-22)	AZ	SCI.3.1.3.PO 2	Construct reasonable interpretations of the collected data based on formulated questions.
Dunked Napkin (17-22)	AZ	SCI.3.1.3.PO 3	Compare the results of the investigation to predictions made prior to the investigation.
Dunked Napkin (17-22)	AZ	SCI.3.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Dunked Napkin (17-22)	AZ	SCI.3.1.3.PO 5	Record questions for further inquiry based on the conclusions of the investigation.

Dunked Napkin (17-22)	AZ	SCI.3.1.4.PO 1	Communicate investigations and explanations using evidence and appropriate terminology.
Dunked Napkin (17-22)	AZ	SCI.3.1.4.PO 2	Describe an investigation in ways that enable others to repeat it.
Paper Bag Mask (23-28)	AZ	SCI.3.1.1.PO 1	Formulate relevant questions about the properties of objects, organisms, and events of the environment using observations and prior knowledge.
Paper Bag Mask (23-28)	AZ	SCI.3.1.1.PO 2	Predict the results of an investigation based on observed patterns, not random guessing.
Paper Bag Mask (23-28)	AZ	SCI.3.1.2.PO 4	Use metric and U.S. customary units to measure objects.
Paper Bag Mask (23-28)	AZ	SCI.3.1.3.PO 2	Construct reasonable interpretations of the collected data based on formulated questions.
Paper Bag Mask (23-28)	AZ	SCI.3.1.3.PO 3	Compare the results of the investigation to predictions made prior to the investigation.
Paper Bag Mask (23-28)	AZ	SCI.3.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Paper Bag Mask (23-28)	AZ	SCI.3.1.3.PO 5	Record questions for further inquiry based on the conclusions of the investigation.
Wind in Your Socks) (29-35)	AZ	SCI.3.1.1.PO 1	Formulate relevant questions about the properties of objects, organisms, and events of the environment using observations and prior knowledge.
Wind in Your Socks) (29-35)	AZ	SCI.3.1.2.PO 4	Use metric and U.S. customary units to measure objects.
Wind in Your Socks) (29-35)	AZ	SCI.3.1.3.PO 2	Construct reasonable interpretations of the collected data based on formulated questions.
Wind in Your Socks) (29-35)	AZ	SCI.3.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Wind in Your Socks) (29-35)	AZ	SCI.3.1.3.PO 5	Record questions for further inquiry based on the conclusions of the investigation.
Air: Interdisciplinary Learning Activities (36-39)	AZ	SCI.3.3.2.PO 3	Design and construct a technological solution to a common problem or need using common materials.
Bag Balloons (40-43)	AZ	SCI.3.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Sled Kite (44-51)	AZ	SCI.3.1.3.PO 4	Generate questions for possible future investigations based on the conclusions of the investigation.
Sled Kite (44-51)	AZ	SCI.3.3.2.PO 3	Design and construct a technological solution to a common problem or need using common materials.
Right Flight (52-59)	AZ	SCI.3.1.1.PO 2	Predict the results of an investigation based on observed patterns, not random guessing.
Delta Wing Glider (60-68)	AZ	SCI.3.1.1.PO 2	Predict the results of an investigation based on observed patterns, not random guessing.
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2004 Science			

Grade Level Articulations			
Arizona Science			
Grade 4			
Activity/Lesson	State	Standards	
Air Engines (12-16)	AZ	SCI.4.1.1.PO 2	Formulate a relevant question through observations that can be tested by an investigation.
Air Engines (12-16)	AZ	SCI.4.1.1.PO 3	Formulate predictions in the realm of science based on observed cause and effect relationships.
Air Engines (12-16)	AZ	SCI.4.1.3.PO 3	Determine that data collected is consistent with the formulated question.
Air Engines (12-16)	AZ	SCI.4.1.3.PO 5	Develop new questions and predictions based upon the data collected in the investigation.
Rotor Motor (69-75)	AZ	SCI.4.1.2.PO 2	Plan a simple investigation that identifies the variables to be controlled.
Rotor Motor (69-75)	AZ	SCI.4.1.3.PO 5	Develop new questions and predictions based upon the data collected in the investigation.
Rotor Motor (69-75)	AZ	SCI.4.1.4.PO 2.a	Choose an appropriate graphic representation for collected data (bar graph)
Rotor Motor (69-75)	AZ	SCI.4.1.4.PO 2.b	Choose an appropriate graphic representation for collected data (line graph)
Making Time Fly (80-86)	AZ	SCI.4.1.3.PO 5	Develop new questions and predictions based upon the data collected in the investigation.
Making Time Fly (80-86)	AZ	SCI.4.1.4.PO 1	Communicate verbally or in writing the results of an inquiry.
Making Time Fly (80-86)	AZ	SCI.4.1.4.PO 3	Communicate with other groups or individuals to compare the results of a common investigation.
Making Time Fly (80-86)	AZ	SCI.4.2.1.PO 1	Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Margaret Mead [anthropologist], supports Strand 4; Nikola Tesla [engineer, inventor] supports Strand 5; Michael Faraday [scientist], supports Strand 5; Benjamin Franklin [scientist], supports Strand 5).
Where is North? The Compass Can Tell Us (87-90)	AZ	SCI.4.1.1.PO 2	Formulate a relevant question through observations that can be tested by an investigation.
Where is North? The Compass Can Tell Us (87-90)	AZ	SCI.4.1.3.PO 5	Develop new questions and predictions based upon the data collected in the investigation.
Where is North? The Compass Can Tell Us (87-90)	AZ	SCI.4.5.3.PO 4	Investigate the characteristics of magnets (e.g., opposite poles attract, like poles repel, the force between two magnet poles depends on the distance between them).
Let's Build a Table Top Airport (91-96)	AZ	SCI.4.1.4.PO 2.d	Choose an appropriate graphic representation for collected data (model)
Let's Build a Table Top Airport (91-96)	AZ	SCI.4.3.2.PO 3	Design and construct a technological solution to a common problem or need using common materials.

We Can Fly, You and I: Interdisciplinary Learning (107-108)	AZ	SCI.4.1.4.PO 2.d	Choose an appropriate graphic representation for collected data (model)
We Can Fly, You and I: Interdisciplinary Learning (107-108)	AZ	SCI.4.3.1.PO 1	Describe how natural events and human activities have positive and negative impacts on environments (e.g., fire, floods, pollution, dams).
Dunked Napkin (17-22)	AZ	SCI.4.1.1.PO 2	Formulate a relevant question through observations that can be tested by an investigation.
Dunked Napkin (17-22)	AZ	SCI.4.1.1.PO 3	Formulate predictions in the realm of science based on observed cause and effect relationships.
Dunked Napkin (17-22)	AZ	SCI.4.1.1.PO 4	Locate information (e.g., book, article, website) related to an investigation.
Dunked Napkin (17-22)	AZ	SCI.4.1.3.PO 2	Formulate conclusions based upon identified trends in data.
Dunked Napkin (17-22)	AZ	SCI.4.1.3.PO 3	Determine that data collected is consistent with the formulated question.
Dunked Napkin (17-22)	AZ	SCI.4.1.3.PO 4	Determine whether the data supports the prediction for an investigation.
Dunked Napkin (17-22)	AZ	SCI.4.1.3.PO 5	Develop new questions and predictions based upon the data collected in the investigation.
Dunked Napkin (17-22)	AZ	SCI.4.2.2.PO 1	Explain the role of experimentation in scientific inquiry.
Dunked Napkin (17-22)	AZ	SCI.4.2.2.PO 3	Explain various ways scientists generate ideas (e.g., observation, experiment, collaboration, theoretical and mathematical models).
Paper Bag Mask (23-28)	AZ	SCI.4.1.1.PO 2	Formulate a relevant question through observations that can be tested by an investigation.
Paper Bag Mask (23-28)	AZ	SCI.4.1.1.PO 3	Formulate predictions in the realm of science based on observed cause and effect relationships.
Paper Bag Mask (23-28)	AZ	SCI.4.1.3.PO 3	Determine that data collected is consistent with the formulated question.
Paper Bag Mask (23-28)	AZ	SCI.4.1.3.PO 4	Determine whether the data supports the prediction for an investigation.
Paper Bag Mask (23-28)	AZ	SCI.4.1.3.PO 5	Develop new questions and predictions based upon the data collected in the investigation.
Paper Bag Mask (23-28)	AZ	SCI.4.2.2.PO 1	Explain the role of experimentation in scientific inquiry.
Paper Bag Mask (23-28)	AZ	SCI.4.2.2.PO 3	Explain various ways scientists generate ideas (e.g., observation, experiment, collaboration, theoretical and mathematical models).
Wind in Your Socks) (29-35)	AZ	SCI.4.1.1.PO 2	Formulate a relevant question through observations that can be tested by an investigation.
Wind in Your Socks) (29-35)	AZ	SCI.4.1.1.PO 3	Formulate predictions in the realm of science based on observed cause and effect relationships.

Wind in Your Socks) (29-35)	AZ	SCI.4.1.2.PO 4	Measure using appropriate tools (e.g., ruler, scale, balance) and units of measure (i.e., metric, U.S. customary).
Wind in Your Socks) (29-35)	AZ	SCI.4.1.3.PO 3	Determine that data collected is consistent with the formulated question.
Wind in Your Socks) (29-35)	AZ	SCI.4.1.3.PO 5	Develop new questions and predictions based upon the data collected in the investigation.
Wind in Your Socks) (29-35)	AZ	SCI.4.2.2.PO 3	Explain various ways scientists generate ideas (e.g., observation, experiment, collaboration, theoretical and mathematical models).
Air: Interdisciplinary Learning Activities (36- 39)	AZ	SCI.4.3.2.PO 3	Design and construct a technological solution to a common problem or need using common materials.
Sled Kite (44-51)	AZ	SCI.4.1.2.PO 2	Plan a simple investigation that identifies the variables to be controlled.
Sled Kite (44-51)	AZ	SCI.4.3.2.PO 3	Design and construct a technological solution to a common problem or need using common materials.
Right Flight (52-59)	AZ	SCI.4.1.1.PO 1	Differentiate inferences from observations.
Right Flight (52-59)	AZ	SCI.4.1.1.PO 3	Formulate predictions in the realm of science based on observed cause and effect relationships.
Right Flight (52-59)	AZ	SCI.4.1.3.PO 4	Determine whether the data supports the prediction for an investigation.
Right Flight (52-59)	AZ	SCI.4.1.3.PO 5	Develop new questions and predictions based upon the data collected in the investigation.
Right Flight (52-59)	AZ	SCI.4.1.4.PO 2.d	Choose an appropriate graphic representation for collected data (model)
Delta Wing Glider (60- 68)	AZ	SCI.4.1.1.PO 1	Differentiate inferences from observations.
Delta Wing Glider (60- 68)	AZ	SCI.4.1.1.PO 3	Formulate predictions in the realm of science based on observed cause and effect relationships.
Delta Wing Glider (60- 68)	AZ	SCI.4.1.3.PO 4	Determine whether the data supports the prediction for an investigation.
Delta Wing Glider (60- 68)	AZ	SCI.4.1.3.PO 5	Develop new questions and predictions based upon the data collected in the investigation.
Delta Wing Glider (60- 68)	AZ	SCI.4.1.4.PO 2.d	Choose an appropriate graphic representation for collected data (model)